

April 7, 2005

Mr. Dave Buck, CEG
PLACER COUNTY DIVISION OF ENVIRONMENTAL HEALTH
11454 B Avenue
Auburn, California 95603

Subject: *Site Abandonment Workplan*

Site: *Holmes Service Station, 2435 Grass Valley Highway, Auburn, California 95603*

Dear Mr. Buck:

Applied Engineering and Geology, Inc. (AEG), under contract with Mr. Jim Holmes, has prepared this *Site Abandonment Workplan* (Workplan) for the Holmes Service Station located at 2435 Grass Valley Highway, Auburn, Placer County, California (**Figure 1**).

Introduction

Holmes Service Station was an automobile repair facility that, until 1992, also dispensed gasoline. It is located in the northern portion of the Auburn area, on the west side of California Highway 49 (Grass Valley Highway), Placer County, California (see **Figures 1, and 2**)

A total of four underground storage tanks (UST) were located on the Property: 1-8,000 gallon leaded gasoline, 2-4,000 gallon leaded gasoline, and 1-400 gallon waste oil. During the removal of one 4,000 gallon gasoline UST on September 17, 1992, petroleum hydrocarbons were discovered. The impact on the subsurface appeared to be significant enough that the owner opted to remove the three remaining USTs, which was done September 22, 1992. During removal of the USTs, soil and water samples collected from the excavations were found to contain elevated concentrations of metals, gasoline, diesel, motor oil, benzene, toluene, ethylbenzene, xylenes, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene. This was apparently due to leakage from the USTs. The first 4,000 gallon tank removed (used to store leaded gasoline) had been taken out of service and was empty. The other tanks were in use up to the date of removal.

Active remediation efforts, and ground water monitoring of the Site since the removal of the USTs, prompted AEG to request "No Further Action" status of the Site in *Quarterly Monitoring Report, Second Quarter 2004, and Request for Closure*, dated August 12, 2004. The Regional Board requested additional information, which was provided in *Additional Required Information for Closure*, dated January 25, 2005. In a letter dated March 9, 2004 [SIC] (attached), Paul Sanders of the Regional Board requested the destruction of the remaining wells located at the Site in order for the Regional Board to proceed with issuing a *No Further Action Required* letter for the Site.

Work to be Performed

All nine of the remaining ground water monitoring wells at the Site are to be abandoned, along with four utility observation points, one extraction well, one sparge point, and one extraction sump. A drilling subcontractor will be brought onsite to overdrill eight of the monitoring wells and to mix and pressure grout neat cement into the boreholes.

Overdrilling will be accomplished by first placing an "A" rod (or equivalent) inside the two inch diameter PVC casing, then the well, grout and sand pack will be drilled out using a hollow stem auger. The hollow stem auger will fit over the "A" rod and prevent the drill bit from wandering off the well, thus all components of the well will be completely removed by the drilling.

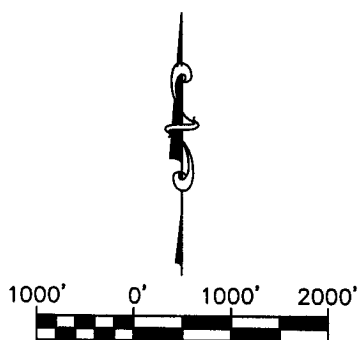
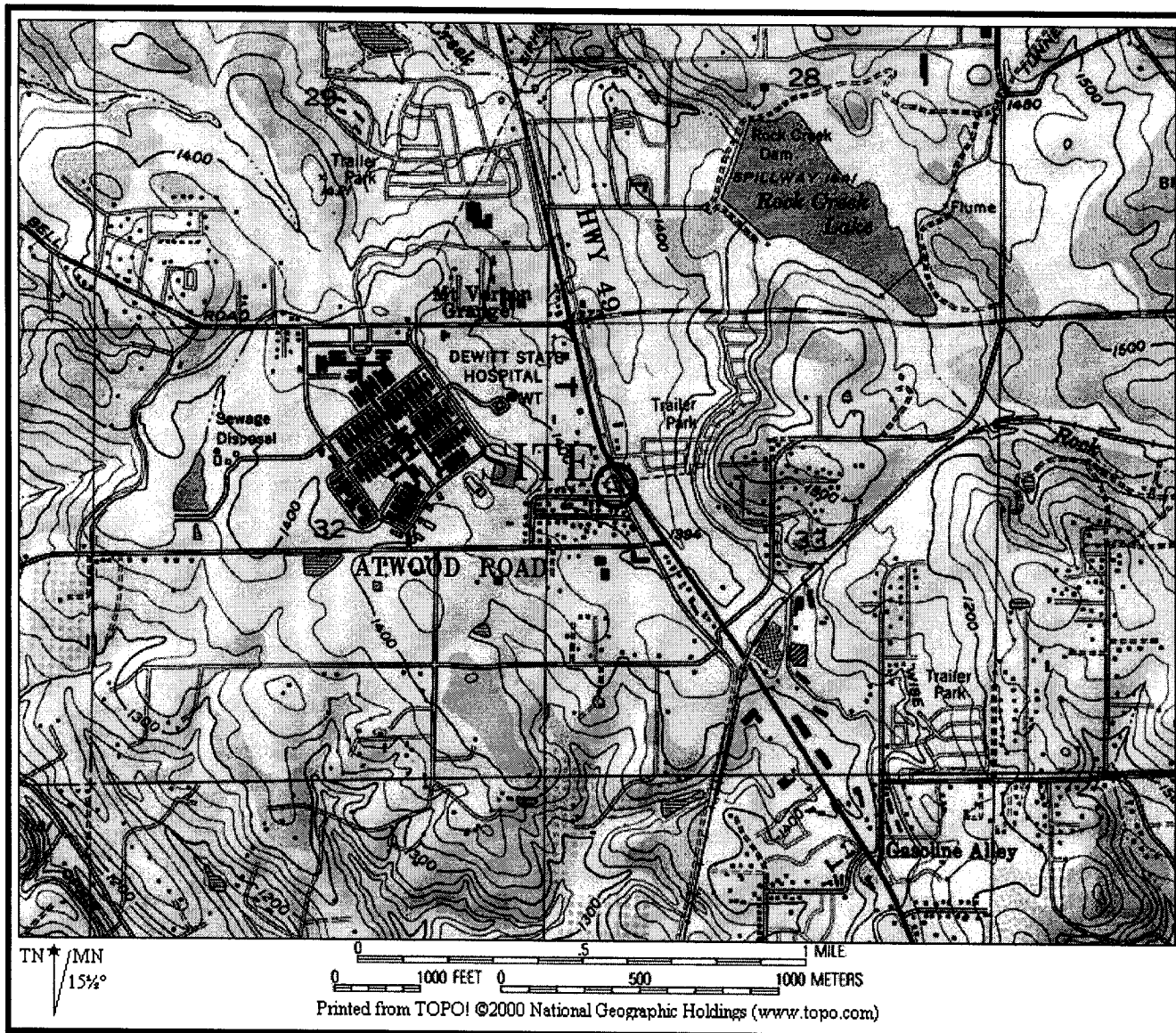
Once the monitoring wells have been overdrilled, the remaining area of the borehole will be backfilled with a bentonite/cement grout to the surface. The bentonite/cement grout will consist of three pounds of non-beneficiated bentonite powder and 7½ gallons of water per each 94 pound sack of Portland cement (Type I-II). The grout will be installed under pressure with a tremie.

Monitoring well MW-8 and extraction well ESW-1 are in the former cavity. Due to pea gravel backfill, they can not be drilled out like the other eight wells. MW-8 and ESW-1 will therefore be abandoned in place by using an extra thick grout and grouting it to within one foot of grade. In addition, the four utility observation points, UP-1 through UP-4 are located next to underground utilities and will therefore be abandoned in place using this procedure.

Sparge point SP-1 is a subsurface completion and will be pressure grouted, with a thin grout, thru the piping that is plumbed to it.

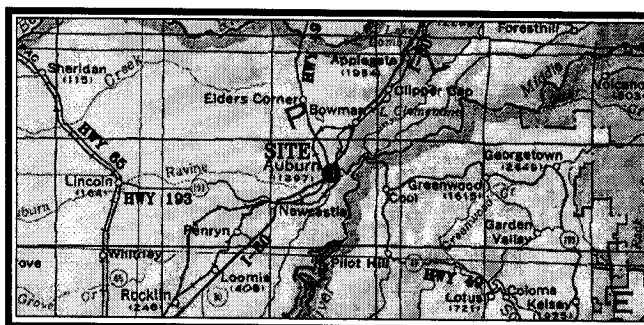
The Extraction Sump consists of a four foot diameter steel corrugated drain pipe set to a depth of ten feet. The sump was set in non-woven hydrocarbon resistant fabric. AEG proposed to abandon the ex-sump by filling it with pea gravel to no less than one foot below grade. The manhole cover and ring will then be removed and the hole completed to grade with concrete.

Method of abandonment for all of the Site's wells, utility observation point, sparge point, and extraction sump is presented in **Table 1**. See **Figure 2** for monitoring well, sparge point, utility observation point and extraction sump locations.



SCALE 1"=2000' +/-
JANUARY, 1992

S:\AEG DOCUMENTS\HOLMES\HOLMES FIG. 1.DWG(22)



NOT TO SCALE

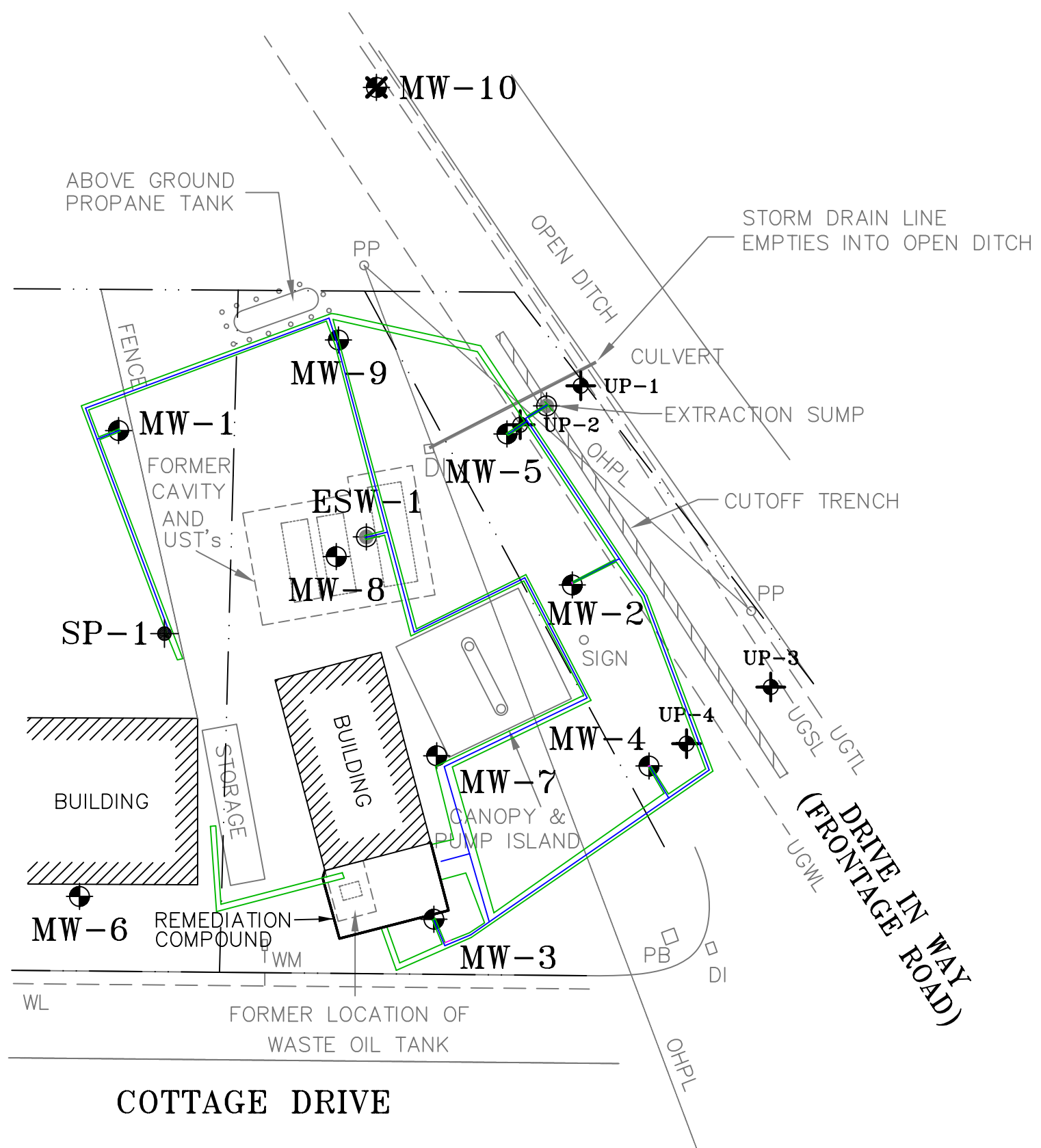
A PPLIED
E NGINEERING AND
G EOLOGY, INC.

P.O. BOX 247, LINCOLN, CA 95648
(916) 645-6014 (916) 645-6098 FAX

SITE VICINITY MAP HOLMES SERVICE STATION

2435 GRASS VALLEY HIGHWAY
AUBURN, PLACER COUNTY, CALIFORNIA

FIGURE 1



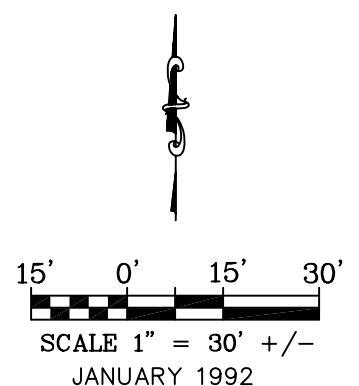
LEGEND

- APPROXIMATE LOCATION OF DESTROYED GROUND WATER MONITORING WELL
- APPROXIMATE LOCATION OF GROUND WATER MONITORING WELL PLACED BY APPLIED ENGINEERING AND GEOLOGY, INC.
- APPROXIMATE LOCATION OF UTILITY OBSERVATION POINT PLACED BY APPLIED ENGINEERING AND GEOLOGY, INC.
- APPROXIMATE LOCATION OF PROPERTY LINES
- DI DRAINAGE INLET
- PB PHONE BOOTH
- PP POWER POLE
- WM WATER METER
- WL WATER LINE
- OHPL OVERHEAD POWER LINE
- UGTL UNDERGROUND TELEPHONE LINE
- UGSL UNDERGROUND SEWER LINE
- UGWL UNDERGROUND WATER LINE

NOTES

1. NOT ALL UTILITIES ARE LOCATED OR SHOWN
2. ALL TRENCH AND PIPING LOCATIONS ARE APPROXIMATE

- APPROXIMATE LOCATION OF TRENCH DUG BY AEG
- APPROXIMATE LOCATION OF TRENCH CONTAINING AS/SVE PIPING



S: \AEG DOCUMENTS\HOLMES\HOLMES 2004\HOLMES GSM + PIPE.DWG(25)

A PPLIED
E NGINEERING AND
G EOLOGY, INC.

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GENERALIZED SITE MAP
HOLMES SERVICE STATION
2435 GRASS VALLEY HIGHWAY
AUBURN, CALIFORNIA, 95603

FIGURE 2

TABLE 1	
Well Abandonment Procedure For Holmes Service Station	
Well ID	Method of Abandonment
MW-1 through MW-7 and MW-9	Overdrilling
MW-8, ESW-1, and UP-1 Through UP-4	Abandoned in Place, Thick Grout
MW-10	Previously Abandoned, 2000
MW-11	Previously Abandoned, 1997
SP-1	Abandoned in Place, Thin Grout
Extraction Sump	Abandoned in Place, Pea Gravel

Should you have any questions please contact either of the undersigned at your convenience.

Sincerely,

APPLIED ENGINEERING AND GEOLOGY, INC.



Stan Walker
Project Engineer



Earl R. Stephens
Project Engineer, RCE 45335



Additional copies have been sent to:

Jim Holmes, Client
Paul Sanders, Regional Water Quality Control Board

Attachments: Figure 1 - Site Vicinity Map
Figure 2 - Generalized Site Map
Letter from California Regional Water Quality Control Board, 03/09/05



California Regional Water Quality Control Board

Central Valley Region



Alan C. Lloyd Ph.D.
Secretary for
Environmental
Protection

Robert Schneider, Chair

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

Arnold
Schwarzenegger
Governor

9 March 2004

Jim Holmes
2435 Highway 49
Auburn, CA 95603

REQUEST FOR WELL DESTRUCTION, HOLMES SERVICE STATION, 2435 HIGHWAY 49, AUBURN, PLACER COUNTY, (LUSTIS # 310235)

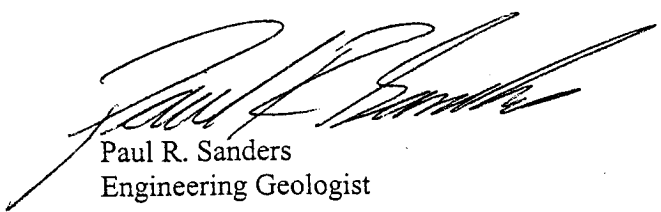
I reviewed the 25 January 2005 *Additionally Requested Information for Closure (Report)*, submitted on your behalf by Applied Engineering and Geology, Inc. The *Report* documents the results of a human health risk assessment performed in an effort to determine if your site's residual hydrocarbon mass, remaining in soil and groundwater beneath your site, poses a threat to human health. Utilizing the highest constituent concentrations that remained in soil beneath the site, and the highest constituent concentrations detected in groundwater during the last four quarterly sampling events, the risk assessment evaluated both baseline carcinogenic risk and baseline toxic effects for commercial receptors. The highest calculated carcinogenic risk level was 1.7×10^{-8} and the calculated hazard index for the site was 3.6×10^{-1} , both well below the de minimis risk level of one-in-a-million (10^{-6}) for carcinogens and a hazard index of one (1) for the site. Given the extremely conservative nature of the risk assessment model, and the results of historical site data, which indicates that the residual hydrocarbon mass will continue to attenuate without migrating any significant distance, the residual hydrocarbon mass is unlikely to pose a threat to human health or adversely impact waters of the state as it attenuates. Therefore, we can proceed with a 'No Further Action Required' letter once we receive:

1. Documentation indicating that all soil and groundwater generated as a result of investigative, sampling, and corrective action has been removed from the site and properly disposed.
2. Documentation that all groundwater monitoring wells associated with your site have been properly abandoned. The Placer County Department of Environmental Health maintains jurisdictional authorities regarding well abandonment; therefore, you are to contact Placer County to obtain all applicable permits and clearances required to abandon all monitoring wells associate with your site, and you must comply with all applicable Placer County directives.

A report containing items 1 & 2 above is to be submitted by **24 June 2005**.

All reports and correspondence are to be submitted for review to the Placer County Department of Environmental Health and the Central Valley Regional Water Quality Control Board, Sacramento.

If you have any questions or comments, please call me at (916) 464-4817.


Paul R. Sanders
Engineering Geologist

cc: *Mark Owens, State Water Resources Control Board, UST Cleanup Fund, Sacramento
Dave Buck, Placer County Environmental Health Department, Auburn
Stan Walker, Applied Engineering and Geology, Inc., Lincoln

California Environmental Protection Agency